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<u>L4</u>	L3 and (electronic near address\$)	5	<u>L4</u>
<u>L3</u>	L2 and (allow\$ near list)	67	<u>L3</u>
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L5: Entry 19 of 23

File: USPT

Nov 12, 2002

DOCUMENT-IDENTIFIER: US 6480885 B1

TITLE: Dynamically matching users for group communications based on a threshold degree of matching of sender and recipient predetermined acceptance criteria

Brief Summary Text (5):

There are many systems that allow users and groups of users to interact with each other. Electronic forums such as electronic mail, voicemail, USENET newsgroups, web-based discussion boards, and online multi-player gaming services all have such facilities. But none of the systems gives users individualized acceptance criteria parameters for locating high quality matches with other users. Each forum is created with a particular subject or objective in mind, and beyond that all users must follow the boundaries of that forum. It is strictly a "take it or leave it" proposition to the user. There is little opportunity for a user to personalize the forum to meet his own needs.

Brief Summary Text (7):

One common yet inflexible division within a topic is by geographic region. Consider a hypothetical worldwide "jazz" mailing list: If a subscriber wants only to communicate about jazz with people in New York City, he must create a separate mailing list, such as "nyc-jazz". For most users, the work involved in creating and managing a list is prohibitive. Some regional groups may develop their own jazz mailing lists, but such lists are usually tough to advertise and promote. Regional lists are inflexible because they have pre-set borders, e.g., the borders of New York City. That list will not meet the needs of users just outside city limits who may have a lot in common with those near them just inside city limits, but little in common with those across town. Each user's needs are different and yet the current mailing list systems are inflexible in allowing users to express their needs and wants via customization.

Brief Summary Text (11):

In online gaming, such as "Yahoo! Games", users are able to rendezvous with other users to play multi-player games, such as the card game "hearts". The service provider will often divide the players into several forums based on ability, such as beginner, intermediate, and advanced. But it does, not allow users to specify other acceptance criteria data, such as personality, computer speed, or amount of "chat-style" conversation they want to engage in during a game. Thus users must either live with low quality matches or resort to trial and error, quitting games in the middle, in a search for the characteristics they want in the game. Again the user's only choice is "take it or leave it."

Brief Summary Text (21):

Accordingly, several objects and advantages of the present invention are: (a) Creates personalized, tunable groups for users, using user profile data and acceptance criteria data they specify. This fundamental novelty greatly empowers and enriches the quality of their communications. (b) Greatly reduces the quantity of electronic forums such as electronic mailing lists, by making possible a small number very broad forums within which users can create their own niches. For instance, a single jazz mailing list can serve the entire world. (c) Allows users to very easily create discussion niches of meaning to them. They may want to only email with other senior citizens, or only with those in their city. In the

parenting example given earlier, each user could specify the children's age range they would like to discuss. The resulting mailing list is tuned to each user's needs, and gives them a much higher quality of interpersonal contact. (d) Provides a way for meaningful groups to form automatically, such as neighborhoods. (e) Provides a way of filtering archived information provided by subscribers into individualized archives. This includes email archives as well as other information such as recommended businesses and web sites.

Drawing Description Text (11):

FIG. 8 is an example of users sending email messages to a mailing list.

Drawing Description Text (12):

FIG. 9 is an example of an unknown user sending an email message to a mailing list, including profile and criteria data.

Detailed Description Text (5):

Referring to FIG. 2, the numeral 200 generally refers to an overview of the use of the present invention. In block 202, a service provider using the invention initializes the system for the first time. The service provider initializes a database, or a dedicated part of a database, on a database server available to both an email server and a web server. This is done using a database system, including a schema, data, and a Database Management System (DBMS). The database system is a product such as those from Oracle or Sybase. The service provider sets up the email server to receive and send email on the internet. They also set up the web server to allow subscribers access to the web site via the internet. The database server, email server, and web server each contain a portion of the present invention. In the preferred embodiment the servers are separate, but alternatively their functions could be combined into fewer servers or expanded to more servers.

Detailed Description Text (8):

At block 16 the system receives an email message from a known user addressed to an email address on a server the service provider's server. Note that while in this preferred embodiment we use an email message as the vehicle of a communication, any means of electronic or automated communication may be used in its place. This email address is the address dedicated by the service provider as the email address of the mailing list he subscribed to at block 208. At block 220 the system determines which mailing list subscribers within the list's subscriber base should receive the email message, by finding in the database the results of the match calculations done in block 212. It then distributes the email message across the internet to the matching subscribers.

Detailed Description Text (10):

To sum up the functionality, consider the following example. Suppose a user Barry wants to send a message about a problem at his child's school. A school mailing list has been established in advance by a service provider hosting the mailing list. Barry first signs up for the school mailing list, specifying his profile and criteria information, including his location and his geography of interest. The system then calculates matches between Barry and other people already on the mailing list based on their profiles and criteria. Barry then writes an email message and addresses it to the email address for his local school mailing list, at the service provider's email server, school@local2me.com. The email server receives the message and retrieves Barry's Match calculations from the database. This describes the other subscribers he is matched with. His message is then sent out to users with whom Barry forms a 100% match, resulting in a satisfying interaction with a subset of users--all the right people.

Detailed Description Text (16):

In another alternative embodiment, the system obtains user profile data first, then receives a message from a profiled user, and then obtains acceptance criteria data before calculating matches and sending the message. Blocks 250, 254, 258, and 234

replace blocks 208, 212, and 216. At block 250, the system obtains user profile data about users via a web form presented to the users, an email message from the users, an inference engine, a search engine, or another source. The system stores this and other subscription information in the database. At block 254 the system receives a message from a profiled user, i.e., a user who has a known profile. The user sending the message will either transmit his acceptance criteria data with the message or he will specify it with other profiled users at block 258. At block 258, the system obtains acceptance criteria data about its profiled users by one or more of the methods described for block 250. In block 234 the system then calculates the matches between users, including the profiled user who sent the message, and uses those results in blocks 220 and 238 in the manner previously discussed.

Detailed Description Text (20):

At block 306 the subscriptions table contains one record for each subscription entered. Each user can have multiple subscription records, for instance subscribed to a jazz mailing list and a neighborhood mailing list. The subscription table contains the unique ID and unique username of the subscribing user. It also contains the name of the mailing list the subscription is for. Another field allows the user to give the subscription a descriptive name. The table also contains subscription user profile data, which is profile information about the given user specific to this subscription. This information is stored in integers and strings--10 of each type of variable are allocated. Similarly, there are data fields for acceptance criteria data ("pcriteria") describing what this user requires of other users, and message acceptance criteria data ("mcriteria") describing what this user requires of messages he receives. Note that we sometimes refer to message acceptance criteria simply as message criteria. The data in each of these profile and acceptance criteria fields varies between mailing lists. The fields can be interpreted by examining the Subscription Template table, discussed below.

Detailed Description Text (23):

Block 318 refers to the Subscription Template table. This table defines the user profile data parameters and acceptance criteria data parameters that describe the user profile data and acceptance criteria data needed from each user for each mailing list. These parameters act as templates for data to later be obtained and associated with users. This table also describes where the user profile data and acceptance criteria data are stored in the subscription table, and what user profile data each acceptance criterion refers to. Each row correlates to one piece of user profile data or acceptance criteria data. A unique ID is available for each record. List name is the name of the mailing list. Item name is the name of the item. Category describes the type of template this is: user profile, user profile acceptance criteria, message profile, or message profile acceptance criteria. Data type describes the type of data being collected. The restrictions field describes any restrictions for data entry (e.g., a number between 1 and 10). Prompt is a text string to use when collecting user profile data or acceptance criteria data from the user. Store.sub.13 in.sub.13 col describes what column in the subscription table provides storage for this data when collected from the user. Store.sub.13 in.sub.13 col also describes what column in the email messages table provides storage for this data when an email message is stored. Applies.sub.13 to.sub.13 table and Applies.sub.13 to.sub.13 column are only used for acceptance criteria entries in the table. (Not used for user profile entries.) They describe what user profile data the acceptance criteria data applies to. Applies.sub.13 to.sub.13 table selects the database table of the profile data that the criteria applies to. This could be either the subscription table, the user table, or the email message table. Applies.sub.13 to.sub.13 column identifies the column of interest within that table.

Detailed Description Text (26):

At block 322, the email archives table is an additional feature to keep an archive of email messages previously processed and distributed by the system. This will be used to give users an estimate of email traffic when they are about to finalize a

subscription process, and to allow users to browse the archives via a web interface. A unique ID is available for each record. The sender's subscription unique ID links a message to the sender. Msg.sub.13 profile1.sub.13 int to msg.sub.13 profile10.sub.13 int and the similar string profile fields store data describing the profile of the message (e.g., topic category is 'recommendations'). These correlate to the message criteria optionally stored in subscription records. The email message content is stored separately in the server's filesystem and its filepath is stored in the DB record.

Detailed Description Text (28):

Referring to FIG. 4, the numeral 208 generally refers to a depiction of an example of a subscription user interface generated by the system and presented to the user as a web page. Numeral 402 denotes a section collecting subscription user profile data. Numeral 406 denotes a section collecting user profile acceptance criteria data. Numeral 408 refers to some subscription user profile acceptance criteria data, to be compared against subscription user profile data. Numeral 410 refers to some base user profile acceptance criteria data, to be compared against base user profile data. Numeral 412 denotes an optional section allowing the user to specify message acceptance criteria data. Subjects 414 and Content Search 416 are two examples of different kinds of message acceptance criteria data that can be compared against the content and profile of an email message.

Detailed Description Text (32):

At block 456 the server stores the subscription record in the database, including the gathered acceptance criteria. Block 458 ends the process. The next phase of the use of the present invention is when subscribers begin sending email messages out to their mailing lists.

Detailed Description Text (35):

As further illustrated by the bracketed area designated 210, an alternative embodiment allows user feedback and criteria tuning during the subscription process. This embodiment includes that which is enclosed in the dashed box and also the shaded area designated 209 and described above. In this alternative embodiment, after processing at 208 as described above, the system proceeds to block 449, where it determines email traffic this subscription would have received in the recent past and the characteristics the user match calculation has produced. It determines the email traffic by matching the new subscriber's message acceptance criteria data to the email archives table in the database for messages sent by matching users as determined in block 448. The search is further constrained to messages sent to the mailing list of interest. The matching process used is similar to the one that is described in detail below and depicted in FIG. 10. (In an alternative embodiment (not depicted), in block 449 database sampling or a similar technique known to those skilled in the art is used to provide an estimate as feedback.)

Detailed Description Text (37):

In an alternative embodiment (as suggested in FIG. 2), the user can subscribe to a list dynamically at the time of sending a first message to the list. In that case, the subscription data and possibly the user profile data would be sent via email or other means along with or just ahead of the first message. The subscription feedback steps of the current process (blocks 449-451) are skipped, and the first message is delivered in accordance with FIG. 10 and the related description below. The subscription may either be stored in the database, or if it is a transient subscription ("one-shot thread" subscription), simply associated with the single email message and not stored in the subscription table. In this latter case, replies to this message back to the mailing list would reach the original sender, but other messages to the mailing list would not.

Detailed Description Text (52):

Referring to FIG. 9, the numeral 520 generally refers to an alternative embodiment to FIG. 8 in which the system receives a message from an unknown user. Embedded

within the ordinary email message is the unknown user's profile and criteria data. Block 522 is the header portion of the email message. Block 524 is the profile and criteria data portion of the message, containing all necessary data for cross-matching the unknown user with the known subscribers. The embedded data could alternatively come via an attachment or other means. Or alternatively the entire communication could be transmitted via another means besides email, such as the HTTP protocol. Block 526 is the body of the message to be distributed.

Detailed Description Text (54):

Referring to FIG. 10, the numeral 220 generally refers to a message distribution process, wherein an email message sent by a subscriber is distributed to a subset of subscribers who match the sending user and his message.

Detailed Description Text (55):

At block 602 the system receives an email message from a known user. We'll call this user "sender". (In an alternative embodiment as suggested by FIG. 2, the message received is from an unknown user.)

Detailed Description Text (66):

One additional feature would be to allow users the option of specifying a subscription expiration date. The system stores the expiration date in the subscription field. The system periodically checks the subscriptions table for expired ones. It notifies the user of an expired subscription via email that his subscription has been deleted.

Detailed Description Text (69):

Another feature is to allow a user to exclude particular subscribers and subjects from his interactions. Excluding subscribers is similar to chat's "ignore user" feature and is implemented by allowing the user to enter email addresses or user names of users to be ignored. The subscriber matching process described in FIG. 5A, block 448 and FIG. 5B are modified to ignore the specified users. The user can also exclude subjects by entering a search string on the subscription tuning web page. The search may be a simple search or complex search predicate. FIG. 10 block 616 is modified to screen out recipients whose search strings match the message content.

Detailed Description Text (71):

Another feature is a way for users to volunteer to moderate a discussion. A moderator acts as a human filter for inappropriate messages, scanning for "spam" and other messages that shouldn't be sent to the subscribers. A user can only moderate messages she receives through her subscription and she only moderates messages for users that are on her recipient list. A user volunteers on her subscription tuning web page. If in this preferred embodiment there are more than three active moderators, this user is offered only to be put on a moderator wait list. But if there are less than three moderators, this user is considered. There may then be a process of requesting an email vote of approval from the other subscribers this subscriber interacts with. If a vote is taken, the volunteering is only allowed if that vote comes back substantially positive. Her subscription record is then flagged with a volunteer moderator flag. During message processing, as shown in FIG. 10, moderators within the recipient distribution list are located and one or more of them is emailed a request to approve the message for distribution. The message is stored in a suspended messages table in the database along with its distribution list until an approval or rejection is returned. If the message isn't approved or rejected after 5 days or another period of time, it is removed from the database and returned to the sender. If a moderator approves the message, it is then sent to the distribution list. If it is rejected, the sender is informed via email. In either case the message is then removed from the suspended messages table.

Detailed Description Text (72):

A variation of the above is a feature to allow the user to specify "ignore

moderator." This allows the user, if so desired, to receive all messages regardless of the moderator. Another variation is to allow each user to select from one or more available moderators which moderator he wants, if any.

Detailed Description Text (73):

Another feature is to allow the acceptance criteria data to include a complex search predicate, an example of which is "recommend*OR `for sale` OR (city and police)". Processes for applying such a search predicate are well know by those skilled in the art. This search could be applied to the message subject and/or content, to the user profile, or to the message profile.

Detailed Description Text (74):

Another feature is to allow more advanced geographical location matching against acceptance criteria data. A mapping product or service is used to recognize street addresses and allow users to specify geographical areas, such as zip code, neighborhood name, city, county, state, region, or an outline drawn on a graphic image of a map. Thus a user can specify the exact geographies of interests and the system can match users based on street addresses and geographies. Alternatives to street address data are the use of street intersection, GPS coordinates, longitude and latitude. If the location is not a specific point, but rather an area, a user would be considered to be generally within that area, and would match another user's geography of interest if the two areas intersected.

Detailed Description Text (75):

Another feature is to allow users to maintain the privacy of their geographical locations by using a small geographical area, such as a 1/2 mile radius around the user's house, in place of an exact location. This reduces the chance of another user being able to pinpoint someone's exact location. The system would allow the user to specify this as part of their base user profile. It would consider the base user profile data to match another user's location acceptance criteria data if the geographies intersected.

Detailed Description Text (76):

Another feature is allowing two or more subscribers of a particular list to form a group, agreeing to share acceptance criteria data as previously discussed. Each member of the group agrees to apply each other member's acceptance criteria data to everyone except that other member, also previously discussed. Any member can form a group by selecting a user interface element on the webpage for their subscription. The system asks them to name their group, and keeps track of a list of group members within the group's record in a group table in the database. The founding subscriber and anyone else he specifies become the controllers of the group. They must approve all new members via an email or web-based approval mechanism. Then as each member is admitted to the group, each of the group members' subscriptions are recalculated as previously discussed, to update all subscribers' recipient lists based on the change to group acceptance criteria data. Note that recipient lists of subscribers not in the group are also affected. Whenever a group member changes his acceptance criteria data, other group members are notified and the group leader(s) must approve the change or expel the changing member from the group. The group will still interact with users outside the group, but only with users that form a mutual acceptance criteria data match with the compound group acceptance criteria data. Alternatively, the group can simply lock out all non-members from all communication.

Detailed Description Text (77):

Another feature is to allow acceptance criteria data sets outside the scope of a particular subscriber to be used optionally by each subscriber or enforced upon all subscribers. The service provider could set up acceptance criteria data that is associated with an entire mailing list, that specifies that all users must be inside the United States for the list. Or a member or the service provider may specify an acceptance criteria data parameter that when applied rids the system of

certain kinds of unwanted commercial email. In either of these cases, or any other similar case, the system allows acceptance criteria data to be named and stored in the database, and for any user to add that acceptance criteria data by reference into their own acceptance criteria data for a subscription.

Detailed Description Text (78):

Another feature is to have the email delivery process control the delivery of reply email messages in a different manner. Replies to an email message go to the distribution list of the original message, rather than the replying subscriber's distribution list. This keeps a discussion with the same group of users, with the potential down-side of some users interacting with each other who don't usually interact. The system stores the email message in the email archive table. It then stores in the database a relationship between the email message sent and the distribution list the message was sent to. The unique ID of the email message's database record is then encoded in the "To" header field of the email message, e.g., "To: neighbors-1354321@local2me.com". When someone responds to the message via their email client's reply all feature, the message is addressed back to that To header field, including the encoded unique ID. When the message arrives at the server, the message is recognized as a reply to an original posting, and the unique ID is extracted from the email address (1354321 in the above example). It then uses the stored distribution list associated with the unique ID, rather than the sender's distribution list, for distribution. The step of checking each recipient's message acceptance criteria data is skipped because the stored distribution list has already done that. The message is then sent to the distribution list. An alternative approach is to have the reply go to the replying subscriber's distribution list, but add some text at the bottom of the message for anyone getting the reply who did not receive the original message it was a reply to. That additional text would be a link to a web page showing the archives of the referenced email message(s).

Detailed Description Text (79):

Another additional feature allows a user to override subscription settings when sending a message. The subscription settings are treated as "default settings", and the user can override any of the settings when sending a message. The user could specify this through additional codes in his email message body, or by using a web form when sending the message. The web form would include access to override those settings. The subscription matching process described in FIG. 5B and its related text are used to determine the distribution list for the present message being sent. The settings are not stored as the user's permanent settings. An example use is in a neighborhood mailing list for a user to send out a "for sale" message to neighbors within 10 miles of him, overriding his usual acceptance criteria data of neighbors within 3 miles of him. This feature would have to exist in conjunction with the previous feature, controlling delivery of reply email messages, so that recipients can answer to the same group.

Detailed Description Text (80):

Another additional feature is to allow each list to require approval for subscription. When a user subscribes, another special "approval user" approves or rejects the subscription. This could either be for the whole list, or for a given sub-group within the list as defined by acceptance criteria data. An example is a professional sub-group of a jazz mailing list. Subscribers checking the "Professional" experience checkbox would need to be approved before admittance. In this case, the subscriber is told that his subscription will need to be approved, and his subscription record is stored in a pending subscriptions table. The approval user is emailed with a request for approval. If the approval does not take place within 14 days, the subscriber is automatically rejected by the system.

Detailed Description Text (81):

Another additional feature is to install a process near the beginning of the email distribution process for eliminating unwanted commercial email ("spam"). Such

systems are commercially available and are configured independently of this invention. The email server process would allow the service provider to configure it to incorporate a spam elimination process at the appropriate step in the process.

Detailed Description Text (83):

Another additional feature is for the email server to add an additional text message to each outgoing message. This could be an advertisement or appropriate link to web site content, as determined by the service provider. The system associates header and footer text with the mailing list in the database. The service provider manages that data manually through the database vendor's manual database access interface. The email server grabs that information from the mailing list database entry at the time of message distribution and modifies the message content appropriate. Alternatively, the additional text feature may be expanded to allow for distributing different additional text to different sets of users, such as targeted ad insertion. The system associates a number of acceptance criteria data sets described by the service provider with a number of additional text messages. It applies the acceptance criteria data sets one by one to a copy of the distribution list, matching users to the additional text criteria. As each user is matched, the additional text is added to his message and the user is removed from the copy of the distribution list. The last acceptance criteria data set is defined to be a null set, with all remaining users receiving the last additional text message associated with that last null acceptance criteria data set. Thus each user receives only a single additional text message.

Detailed Description Text (84):

Another additional feature allows a user to set up an email alias preference as part of his base user profile. Then each message sent by the user to any mailing list is automatically modified to reflect his email alias rather than the original email address listed in his message. The system also shows this alias instead of his email address at any time his email address would be shown to a user at the web site.

Detailed Description Text (85):

Another additional feature is for the system to determine a user's distribution size threshold based on the user's expertise level. This would warn, for instance, a novice user before sending an email message that would reach more than 200 recipients. The user is asked during registration to rate their computer experience level, and that experience level is matched to thresholds over which the user is warned. During message distribution, the user's threshold is checked for whether there are more recipients on the distribution list than the threshold. If there are, the system informs the user of the size of distribution and asks for confirmation. The system then either distributes, the message or discards it depending on the user's response.

Detailed Description Text (86):

Another additional feature is for the system to verify a user's geographic address when a user subscribes to a mailing list requiring address verification. The mailing list record contains a flag indicating that address verification is required for subscription. When the user subscribes, the system prints a postcard addressed to the user with a special verification code. The system then stores the subscription(s) in a pending subscriptions table in the database. The service provider mails the postcard to the user via the United States Postal Service. Once the user enters the verification code at the web site, the subscription(s) are activated. Alternatively, instead of using a postcard the system allows another subscriber of a given list (e.g., a neighbor) to vouch for the user, for the given list. In that case, the system stores the vouching subscriber's user ID in the subscription record of the new user, and subscribes the new user.

Detailed Description Text (92):

Another additional feature is to allow the user the option of receiving messages for a subscription on the service provider's web site, rather than in her email inbox. In this case the system keeps track of which messages she has and hasn't read, and provides a means of reading and replying to messages.

Detailed Description Text (93):

Another additional feature is to allow users to create ballots to collect votes on any subject from users they are matched to. A user describes the ballot questions via a web site user interface, and the system creates a poll and emails it out to the matched users on the mailing list. The results of the poll are tallied and available for viewing on the service provider's web site. Another additional feature is to provide the user the option of a digest version of messages from a subscription. Rather than each message being delivered separately, a digest message containing multiple messages collected over a short period of time is sent out periodically. Each user specifies when to send out a digest to them, based on time, number of messages waiting, etc. The system collects messages and periodically delivers the digest to the user.

Detailed Description Text (94):

Another additional feature is to provide inexact matching, letting users set thresholds and instructions for different levels of matching. Rather than the previously described 100% match, this allows for partial matching. The user can specify different actions, e.g., they might want scores of 100% delivered via email, those from 70-99% delivered via a daily digest summary email, and those from 60-69% delivered weekly via digest summary email. Scoring the extent of the match also provides the user the ability to literally "turn the volume up or down" on a subscription as a whole. He simply controls a single parameter specifying the threshold for messages to get through.

Detailed Description Text (98):

Another additional feature is allowing subscribers to have references within their acceptance criteria data to other subscribers' acceptance criteria data. This is a way for subscribers to use each other's acceptance criteria data. There are many uses for combining acceptance criteria data, with some "real world" parallels. For instance, when musicians form a band, it is often through a process of beginning with each individual's acceptance criteria data, testing whether there is common acceptance criteria data that makes sense, and then finally combining their acceptance criteria data.

Detailed Description Text (103):

An acceptance criterion reference to another users acceptance criteria data can be thought of as a container. Each acceptance criterion inside the referenced user's acceptance criteria data set must be checked. Thus, the system would perform the entire acceptance criteria data process to compare the new set of acceptance criteria data against the given data set. The system must allow for the possibility of circular references to avoid an "endless loop"; techniques for handling this are well known to those skilled in the art.

Detailed Description Text (104):

Since any one user's changes to his criteria impact everyone in the group, the system would include at least two types of groups: "democratic" and "dictatorial". In a democratic group, the system notifies users of any proposed criteria changes, and users have the opportunity to discuss and vote be changes go into effect. In a dictatorial group, one or more of the users are in charge, and approve all criteria changes through a mechanism provided by the system.

Detailed Description Text (107):

As discussed earlier, there are many alternative embodiments of the present invention. People need personalized, tunable communities. They need the ability to specify and match up with other people in a variety of electronic forums. This

invention is a very powerful way of allowing them to do that--to see only the people they're matched to see. It's like going to a party with all the right people.

Detailed Description Text (110):

Another alternative embodiment for the present invention is unified messaging. Unified messaging is a medium that combines email, voicemail, fax, and potentially other communication services and lets each user select their medium of choice. Sun, Lucent and a number of other companies develop unified messaging solutions. Since unified messaging can always get from other mediums to email, unified messaging is a direct application of the present invention to that medium. These are just different mediums for communication, but they aren't materially different for our purposes. In the preferred embodiment all setup, control, and access to subscriptions, shard data, etc, happens via the web. One modification to that for this alternative is to allow that setup, control, and access to happen via email (or email translated to other unified messaging mediums) instead of the web.

Detailed Description Text (113):

Another alternative embodiment for the present invention is electronic bulletin boards. The most common electronic bulletin boards on the internet are USENET newsgroups (hereafter referred to as newsgroups). The subscription process in this alternative is substantially the same; the main differences come in reading and posting messages. Subscribers post messages through the service provider's server. This could be through a newsgroup server port, or using a web interface, via email to the service provider, etc. Since newsgroup postings are replicated on servers throughout the Internet, there is some efficiency to be gained by encoding some of the database information about the posting user in headers of the posted message. This allows client newsgroup reading programs to do some decoding and matching without having to interact with the service provider's server. Examples of message headers are: "X-Posting-Type: Dynamically Matched Posting", "X-Local2Me-User: joe.sub.13 hotmail". The system may also encode insensitive profile and acceptance criteria data from the posting user in message headers. Let's call this full set of headers "Dynamic Matching.TM. Headers." (An example of insensitive user profile data is whether the subscriber considers himself to be a "professional" or "amateur" in a given field. A home address is an example of sensitive user profile data that, if needed, will have to be evaluated privately at the service provider's server during a user's news reading session.) The client newsgroup reading application may use the Dynamic Matching.TM. Headers for matching or may require subscribers to read messages through some method provided by a service provider that is utilizing the present invention. In the latter case the client newsgroup reading software knows how to exchange with the server the extra information needed to support the present invention. It informs the server of the identity of the user who is reading messages. The server then only transmits messages whose users form a match and optionally a message acceptance criteria data match with the reading user. Alternatively, the newsgroup reading software may allow the user to see all postings, but highlight matching ones using color, icons, etc. The server in this case transmits additional information to the news reading software about which individual posted messages should have this special highlighting.

Detailed Description Text (115):

Another alternative embodiment for the present invention is online gaming rendezvous. Services such as "Yahoo! Games" (December 1998) offer forums in which users can meet up for games of cards and other internet-based multi-player online games. Indeed nearly all commercial computer games to day have some multi-player internet features built in. The typical online gaming forum divides the users into skill levels (their main acceptance criterion) and the users then have to rendezvous via chat to start a game, or jump into an already-formed game. A common experience is to quit part way through a game when you find that your gaming companions are a bad match, in conversation style, speed of play, etc. Applying the present invention, the service provider would offer a host of user profile

acceptance criteria data and user profile data to help users rendezvous with the best partners. There is still a registration process for collecting base user profile data. The subscription process is more transient, being more of a "gaming preferences" setup. Following the setup, the user is presented with a set of players who match up with the user based on a mutual acceptance criteria data match. They can then chat, send each other instant messages to invite each other to play, etc. Optionally, when messages are sent they may include, message profile data to allow matched users to apply their message acceptance criteria data. An alternative is to show the user all other users, but denote the matching users through an icon or other graphic highlighting. The system also shows the browsing user games in progress that have open slots, highlighting the users within those games matched to the browsing user. He can then join a game that will have the best chance of being satisfying to him.

Detailed Description Text (116):

Another alternative embodiment for the present invention is online gaming. Many users can play the game simultaneously, but each user only interacts with other users they are mutually matched to. The age software is designed to allow for game play in which each user sees only the other players he is matched to see. This is very similar in implementation to online gaming rendezvous, with additional functionality built into the game play to account for this customized per-player environment.

Detailed Description Text (117):

Another alternative embodiment for the present invention is instant messaging. Instant messaging services such as ICQ, "Yahoo! Pager", AOL Instant Messenger, and Excite PAL allow a user to send another user an immediate text message that pops up on the other user's screen while the user is connected to the messaging system. This is typically when they are connected to the internet and running the messaging client application. Instant messaging applications do not as of yet have the equivalent of electronic mailing lists, i.e., a way to send an instant message to a group of users. Applying the present invention to instant messaging requires no change to the subscription. An additional user interface component in the instant messaging software or on a web page allows the user to see a list of all matching users who are logged on. This happens within the context of a subscription to a particular forum. The user may then choose to send a message to any one user on that list. Sending of messages to an entire matching group is routed through the service provider's instant messaging server, which determines which message recipients will receive the message. It then distributes the message to those recipients. As an example of its use, a user may have two subscriptions set up--she wants to hear from all neighbors within five blocks from her about for sale items, and all neighbors within one block of her about emergencies.

Detailed Description Text (118):

Another alternative embodiment for the present invention is online chat. The subscription process is modified in a way similar to online gaming rendezvous. In today's online chat, users begin by selecting a chat room, and then chatting with everyone in that forum. There is typically a way to ignore specified users. The present invention allows a first user to set up more elaborate acceptance criteria da a only interacting with other users who form a one-way or two-way match with the first user. In the case of a one-way match, the match calculation is between the first user's acceptance criteria data and each other user's user profile data. Alternatively, it allows full chat exchange with all users, but indicates in the user list & message window the degree of match the user has with each other user. For instance, the system could display stronger matches in darker colors and weaker matches in lighter colors. Subscription settings may apply to one or more chat rooms. After setting up a subscription, the user can view a list of chat rooms and see what rooms the people he's matched with are spending their time in. He can then select a room and begin interacting. The message profile and acceptance criteria data are not used. Alternatively, the message profile and acceptance criteria data

are used to help users communicate about specific subjects. In that case the system queries the user for message profile data if it cannot be determined automatically.

Detailed Description Text (121):

Another alternative embodiment for the present invention is online clubs and communities, such as "Yahoo! Clubs" (Dec. 1998). In these services, a group forms around a theme, and users can chat, post messages to a discussion board, share web links of interest, etc., within that group. By using the present invention, the user can create a personal, tunable niche within the group. The subscription process is the same: after selecting a club, a user can specify his acceptance criteria data within the club. The user then only sees content (chat, message postings, web links, pictures, calendar entries, etc.) of other users who form a match with the user. The chat portion is handled as discussed in the online chat application above. Message postings are handled as described in web-based discussion boards above. Other areas are handled in a similar fashion. Alternatively, the system may allow for one-way acceptance criteria data application: the first user sees content from second users who the first user's acceptance criteria data matches, without regard to the second users' acceptance criteria data. Another alternative process is for to allow moderators, club owners, and other "authorities" to view all messages, even if there is no mutual acceptance criteria data match.

Detailed Description Text (122):

Another alternative embodiment is web surfing community forums. These forums provide a means for users to exchange messages with each other based on the web sites they are viewing. This service can be provided independently of the web sites that users are posting messages to. This is done through web browser plug-ins and other new technology that allow the exchanged messages to be stored somewhere other than the currently-viewed web site. When users are browsing that site or a particular page at that site, the messages are retrieved from the independent data store and displayed to the user.

Detailed Description Text (127):

To summarize the web surfing community forums embodiment, let's take an example. A single forum, called "web surfers," is created by Local2Me.com to dynamically match web surfers from all over the world as they are surfing web sites. It allows users to chat with each other in a group forum when they are on the same web site. A user John joins the web surfers forum through the Local2Me.com web site. He sets his user profile as a 23 year old single male, living in New York City. He sets his user profile acceptance criteria data to match men and women between ages of 18-28, within 100 miles of him. A separate window for chatting opens next to his main browser window. John now begins surfing the web in his main browser window, and as he enters each web site, the chatting window updates to show him the users also browsing that web site that he's matched to. John can now exchange messages with users as he surfs the web.